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ABSTRACT

The use of parent training programs to aid parents has long been regarded as a fundamental technique for remediation of child rearing problems. What is open to question is what types of programs best serve what types of individuals. The parent training program (Early Intervention Program) evaluated here is distinguished for two reasons: (1) it emphasizes differential social reinforcement as the training model, and (2) it uses parents who have graduated from the program as trainers. A total of 158 mothers and their children began the program; 95 mother-child dyads completed it. Excluding those who moved away or were referred elsewhere, 68% of the participants completed the program. This rate of completion compares favorably with rates from other programs. The characteristics found to be related to program completion included ethnic group membership, socio-economic and marital status, and maternal education. Other variables such as child age and level of cooperation at intake were associated with the length of the training. The observational data revealed that as a result of involvement in the program, mothers learned to selectively attend to their children's compliant behavior and the children became significantly more cooperative (from 62% cooperative in baseline sessions to 94% cooperative after completion). It is argued that trainers need to identify the optimal characteristics of subjects in order to anticipate and curtail the dropout rate and prevent slow completion of training. (Author/BG)

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# Effectiveness in Parent Training:

# Characteristics of Parents and Children

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* Formerly called the Early Intervention Project

Abstract

The use of parent training programs to aid parents has long been regarded as a fundamental technique for remediation of child-rearing problems. What is open to question is what types of programs best serve what types of individuals. The parent training program evaluated here is distinguished for two reasons: it emphasizes differential social reinforcement as the training model and it uses parents who have graduated from the program as the trainers. A total of 158 mothers and their children began the program; 95 completed it. Excluding those who moved away or were referred elsewhere, 68% of the participants completed the program. This rate compares favorably with the rates from other programs. The characteristics found to be related to program completion included ethnic group membership, socio-economic and marital status, and maternal education. Other variables such as child age and level of cooperation at intake were associated with the length of the training. The observational data revealed that mothers learned to selectively attend to their children's compliant behavior and the children became significantly more cooperative (from 62% to 92% cooperative). It is argued that trainers need to identify the optimal characteristics of subjects in order to anticipate and curtail the rate of dropping out or slow completion of training.

## Effectiveness in Parenting Training:
## Characteristics of Parents and Children

In both the theoretical and clinical research literature, parents have long been recognized as having the ability to shape, modify, or maintain child behavior. Consequently, parent training programs are regarded as one of the most practical and effective approaches for remediating child behavioral problems or for changing parent-child interactions (see Lavigne & Reisinger, 1984). Although parent training and education has been of interest since the early part of the century, a recent reviewer of the current state of knowledge commented that ... "the only thing we know of parent education is that it can have an impact. We still do not know what to teach, how to teach, who should teach it, or for how long." (Clarke-Stewart, 1981, p. 81).

"Who should be taught?" is another important but unanswered question. All parents are not equally influenced by training and all children are not equally capable of responding to training. Therefore, it is necessary to evaluate what types of parents and children respond most effectively to the program. Effectiveness may be defined in three ways: What proportion of those who began the training completed it and, for those completers, how much did their behavior change and how long did it take? These three questions can be combined into a "continuum" of subject appropriateness for that specific program. An one end of the continuum are those who are least appropriate; they are most likely to drop out. At the other end are those subjects who are most appropriate; they will progress rapidly and benefit greatly from the training. In the middle of the continuum, are those subjects who complete the training with various delays and difficulties.

Identifying the "goodness of fit" between program type, parent characteristics and child characteristics has gone largely unaddressed and yet has obvious implications. Drop-outs are costly to any program in terms of wasted time and effort; they are also detrimental to both staff and trainee morale. Therefore, identifying those who are more likely to drop out is important so that special attention can be given to those individuals. Similarly, by identifying those who encounter difficulties in completing the program, trainers can be alert and devote extra attention to those individuals.

Completion rates of parent training programs have varied widely. Some programs report graduating almost all of the participants (91%, Clark & Baker, 1983), or a majority (75%, Dumas & Albin, 1986), yet other programs have had more modest completion rates (49%, Firestone & Witt, 1982). In the assessment of parent and child characteristics of program completers vs. drop-outs, a number of variables have been studied. Parental characteristics such as lower SES, younger age, fewer years of schooling, and single parenthood have each been associated with increased likelihood of dropping-out (e.g., Clark & Baker, 1983; Firestone & Witt, 1982; Griest & Forehand, 1982). Conversely, variables associated with increased behavioral change have included higher parental socio-economic status variables, more education, and a stable marriage (Brody & Forehand, 1985; Clark & Baker, 1983; Dumas & Albin, 1986). One of the purposes of this study was to replicate some of those findings on a sample considerably larger than commonly used and to examine which child and parent characteristics were related to effective training.

Like other well-known behavioral management training programs (e.g., Brody & Forehand, 1985; Patterson, Reid, Jones & Conger, 1975), the Early Intervention Project (EIP) relies on the principles of reinforcement and their application in

behavior change. Specificially, the center-based parental training emphasizes differential social reinforcement in combatting non-compliance. A second unique feature of the program is that the trainers are parents who have already completed the program and are "paying-back" the program by training new parents.

## Method

### Subjects

Subjects were 158 mothers and their children (114 boys) aged 18 to 72 months (M=36 months), enrolled in the EIP at Children's Memorial Hospital in Chicago, Illinois. The parents were from a range of ethnic groups (66% were Caucasian,18% were Hispanic, 7% were Black), education (M=13 years), and income (32% were supported by AFDC, 31% had incomes over $30,000). The children were referred to the program from a variety of sources (e.g., pediatricians, preschool teachers) from late 1980 to mid-1983. Parents sought help because of difficulty in managing their children's behavior. The most frequent presenting problems included noncompliance (68%), eating, toileting, or dressing problems (50%), and aggressive behavior (44%). About 20% of the children had serious health problems such as hydrocephalus or a congenital anomaly. Forty-six percent of the mothers reported that their children had some type of developmental problem; the most frequent problems were attention deficit disorder (31% of the problems) and language delay (21%).

### The Program

The Early Intervention Program is modeled after the Regional Intervention Program (RIP) in Nashville, TN (Ora & Reisinger, 1971). Training emphasized the use of differential social reinforcement (Wahler, 1969) to change the child's noncompliant behavior. Parents practiced child management skills with their children in a structured play session conducted twice each week in a center by a

trained instructor. During the 20 minute play sessions, parents issued, every two minutes, a request to play with a specific toy. In addition, parents participated in a weekly group meeting conducted by a clinical child psychologist, observed and charted their children's behavior at home, and completed quizzes in a workbook (Becker, 1971).

The twenty minute "toddler management sessions" were the central focus of the training and involved four phases: Baseline, Intervention I, Reversal, and Intervention II. During the Baseline sessions (M = 3 sessions), mothers were told to use whatever methods they wished to encourage child cooperation with their requests. Following Baseline, Intervention I began with the instructor explaining differential social reinforcement and modeling it through role playing. These sessions continued until the child was cooperative at least 85 percent of the time across three consecutive sessions and the parent demonstrated correct use of differential attention. Reversal, conducted for one session, came next. The parent was instructed to attend to the child only if he or she was oppositional. This served to demonstrate to the parent that the child's behavior could be strongly influenced by differential attention. Intervention II, identical to Intervention I, was then conducted until the child was again cooperative at least 85 percent of the time across three consecutive sessions. Upon reaching that criteria, the child had successfully completed the program.

Measures

During a preliminary intake interview, background information was collected from each family. This included demographic variables as well as a developmental history of the child and current problems. Behavioral data were collected by the instructors during the Toddler Management Sessions. The instructors, who were graduates of the program, observed and recorded maternal and child behavior

(coded in10 second units over the 20 minute session). Target behaviors included child cooperation with or opposition to the maternal request to play with a particular toy and maternal attention to cooperative or oppositional behavior. Cooperative behavior included efforts to get the toy, play with it, or watching the toy in a reciprocal interaction with the parent. Parental attention to the child's cooperative or oppositional behavior was coded as to whether it occurred during each interval. Parental attention included both verbal behavior as well as nonverbal responses such as looking at or playing with the child. Measures of the mothers' and children's behavior were thus obtained by calculating the percentage of 10 second intervals in which the behavior was present divided by the total number of intervals (n = 120). Each instructor had to attain a 95% agreement rate with other instructors before beginning rating. Inter-observer reliability was periodically assessed on 82% of the mother-child dyads on average of three different days. The average agreement (over agreement and disagreement) for the four codes was 96% (range = 86 - 100%).

## Results

### Program Completion Rates

Of the 158 mother-child dyads who began the program, four moved out of town before completing the program and 13 children were referred elsewhere for individualized evaluation and treatment. Of the remaining 141 mother-child dyads, 45 dropped out of the training. Most of those who dropped out (74%) did so after attending from two to twelve Toddler Management sessions, but the range of sessions attended varied from none to a high of 63! The most common reasons given were: transportation problems, scheduling problems, or finding the program unsatisfactory. Therefore, not including those who moved or were referred elsewhere, 68% of the children who began the training successfully completed it.

Neither child sex nor age were related to completion status. Sixty-four percent of the boys and 54% of the girls completed the training; sixty-five percent of children under three years of age completed, as did 67% of the children aged three to four, and 73% of the children over four years of age.

Parental background variables of marital status, ethnicity, social class, income, and parental occupation and education were related to each other and were related to completion status. Caucasians were most likely to complete the program (73% did so); minorities were less likely to do so (53%; $\underline{X}^2$ [1, $\underline{n}$ = 134] = 5.07, $\underline{p}$ < .05). The marital relationship was also found to be related to completion status: 72% of the women who were married or living with the child's father completed the program whereas only 52% of the nonmarried or single women completed the program ($\underline{X}^2$ [1, $\underline{n}$ = 139] = 4.2, $\underline{p}$ < .05). The only other parental background variables found to be related to program completion were maternal education and socio-economic status scores. Sixty-three percent of the women with less than a high school education failed to complete the program, whereas only 30% of the college graduates dropped out ($\underline{X}^2$ [2, $\underline{n}$ = 129] = 7.01, $\underline{p}$ < .05). Those who completed the program had higher SES scores ($\underline{M}$ = 27.5) than those who dropped out ($\underline{M}$ = 21.7; $\underline{t}$ (127) = 2.8, $\underline{p}$ < .01). Table 1 lists the demographic characteristics of those who completed and those who dropped out of the program.

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Insert Table 1 about here

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No relationship was found between completion and the numbers of pregnancy problems, developmental problems, presenting problems, or maternal reports of needs, as determined by a multivariate analysis of variance. A discriminant analysis was performed on the data to test which variables could best predict

whether a mother-child dyad would complete the training. Employing the SES scores and ethnic group membership as the independent variables, the resulting model could correctly classify 98% of the completers, but could only correctly place 16% of the drop-outs. The addition of other variables did not significantly improve the model's prediction of completion status.

Speed of Program Completion

The number of sessions needed to complete the training varied widely (range = 10 to 75) and was related to child's age at intake ($r$ [95] = .39, $p < .0001$). Younger children needed fewer sessions to complete the training than older children. Mothers who reported on intake that their children had more needs ($M$=19) had children who required more sessions to complete the training ($r$ [92] = .24, $p < .01$). On average, the children required 24 sessions to finish the training ($SD$ = 13). In contrast to the relationship between program completion and background variables, no association was found between the children's ethnic background or parents' education and number of sessions needed to complete the training.

In order to assess which variables predicted how quickly the children completed the training, a stepwise multiple regression was performed, using the total number of training sessions needed as the dependent variable. The best single factor model was the child's age at intake ($R^2$ = .19, $F$[1,75] = 17.37, $p <$ .0001). Parental SES rating entered into the two factor model ($R^2$ = .23, $F$ [2, 75] = 10.72, $p < .0001$); child needs entered into the three factor model ($R^2$ = .27, $F$ [3, 75] = 9.15, $p < .0001$) and the number of health problems entered into the four factor model ($R^2$ = .31, $F$ [4, 75] = 7.86, $p < .0001$).

Behaviorial Changes

The observational data revealed significant behavioral change over time among the children who completed the training. The two child (cooperation and

oppositional behavior) and two maternal (attention to child cooperation and opposition) observational categories were highly correlated (e.g., child cooperation and maternal attention to cooperation, $r = .97$, $p < .0001$) so the observational results will focus primarily on rates of child cooperation. Over all the children who completed the training, child cooperation in the Baseline sessions averaged 62% of the time (SD = 21%). Following training, cooperation increased in Intervention I to 94% (SD = 4%). Thus, the children's markedly improved cooperation rates not only met the criterion (of 85%) but surpassed it. During the Reversal Condition, where mothers were instructed not to attend to compliant behaviors but give attention to noncompliance, the mean compliance rate dropped to 35%. Finally, during Intervention II, child compliance returned to its pre-Reversal level, averaging 92%.

There were no gender differences in the rate of cooperation, either during baseline or during the final sessions. The children's baseline compliance rate was, however, related to the number of sessions needed to complete the training ($r[133] = -.31$, $p < .001$), indicating that those children who were less compliant in the baseline session were more likely to need a greater number of training sessions. Maternal selective attention was also observed to have changed. Mothers, during the baseline condition, averaged attending to oppositional behavior in 37% of the coding units, but after training, reduced that behavior to only about 2% of the 10-second units. Conversely, their mean attention to compliant behavior increased from 61% to 92% of the time. As instructed during reversal, mothers attention to cooperation averaged only 7% of the time while their attention to opposition averaged 59% of the time.

To assess variables related to the speed of program completion, those children who completed the program the quickest were compared with those who took the longest. This was done by grouping the top quartile (23 children) with the bottom

quartile (23 children). The "fast completers" finished the program in 14 sessions (range = 10 - 16), and the "slow completers" required on average 33 sessions (range = 24 - 50). (Four children were not included in the "slow" group as they averaged more than three standard deviations from the slow group's mean).

The slow and fast groups differed on the average rate of cooperation in each of the four conditions ($\underline{F}$ [12,78] = 4.10, $\underline{p} < .0001$). Univariate tests indicated that the largest differences in the rates of cooperation were during the first intervention condition ($M_F = .85$, $M_S = .66$; $\underline{F}$ [2,47] = 14.46, $\underline{p} < .0001$) and the smallest differences occurred during the baseline condition ($\underline{F}$ [2,47] = 5.62, $\underline{p} < .01$). The groups also differed by the average age of child ($\underline{F}$ [1,45] = 6.20, $\underline{p} < .01$) and ethnic group. The fastest completers of the program averaged 3.7 years of age (range = 2.4 to 5.9), whereas the slowest group averaged 3.0 years of age (range = 1.4 to 4.9). Eighty-three percent of the fast completers were Caucasians yet they comprised only 56% of the slow group ($\underline{X}^2$ (1, $\underline{n}$=46) = 3.7, $\underline{p} < .05$).

## Discussion

The 68% completion rate of the EIP Parent training program compares favorably to the completion rate of many other parenting programs with more homogenous samples that studied here. This program was operating in a large urban area and serving parents and children with a wide range of backgrounds and problems; as such, the completion rate is more impressive than the percentage indicates. Part of the reason for this relatively high rate of completion is undoubtedly the supportive atmosphere created as a result of having parents who are program "graduates" serve as trainers. This feature helps the program graduates consolidate what they learned from their own training. In addition, the use of parents as para-professionals is obviously a cost-effective solution to this labor intensive task.

Similar to other studies, a number of background variables were found to have some relationship with whether or not the mother-child dyad completed the program. The parental characteristics of race, marital status, socio-economic status, and maternal education were all associated with completion status. Also as in other studies, it was found that single, minority, lower social class, less educated women were all more likely to drop out of the program (e.g., Clark & Baker, 1983; Firestone & Witt, 1982). But these demographic variables alone did not form an effective model to predict drop-outs in the discriminant analyses. More sublte parental characteristics, such as the psychological variables of maternal depression or marital strife (e.g., Brody & Forehand, 1985) might contribute to a stronger prediction of whether a parent will drop out of the program.

Not only could the program be judged effective with regard to the completion rate, but dramatic behavior changes were found in both the children's cooperative and oppositional behavior and the mothers' attention to these behaviors. Through training parents in a new skill--the use of selective attention--mothers were able, in an average of ten weeks, to dramatically alter their children's rate of compliance within a controlled setting. The differential rates in which mothers attended to compliant behavior during the baseline condition, in contrast to the rate achieved after training, provides evidence that appropriate use of selective attention was indeed a new skill for mothers.

In contrast to the variables related to program completion, a different set of variables were associated with the length of training. Four child variables were related to the length of training: the child's age, the number of health problems and needs a child had upon entering the program, and how cooperative the child was during the baseline sessions. In addition, the parents' socio-economic status was also related to the length of training. When subgroups of those who completed

the program quickly and slowly were compared, the fast group was reliably older than the slow group. Taken in conjunction with the length of training finding, that result indicates that the age of about 3 1/2 years old is an optimal age for a child's swift completion of this type of training program. Younger children take longer to pick up on the reinforcement contingencies. Older children, whose behavioral patterns are more ingrained, require more sessions to demonstrate a high level of cooperation.

This study provides more evidence for the view that effective training programs involve a three-way interaction of the characteristics of the children, the parents and the program. The basic question is what are the optimal characteristics of the parents and children that will benefit from this type of training program? When one or more of the subject characteristics are less than optimal, the result could be a greater likelihood of extended training periods or dropping out. Thus, a major goal for all training programs should be to identify those subject characteristics that are optimal for that program. Once those characteristics have been identified, the staff can be alerted when a new trainee does not meet those criteria. Provision of addition attention and assistance to the at-risk parent-child dyad will increase the likelihood that they will get the help they need.

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Table 1. Demographic Characteristics of the Completers and Drop-outs[1]

| | Completers (n-96) | Drop-outs (n-45) |
|---|---|---|
| Child's mean age (months) | 40 | 40 |
| Child's sex | 75% male | 64% male |
| Mean number of children in family | 2.1 | 2.3 |
| Marital Status | | |
| Married | 81% | 63% |
| Divorced, Separated | 8% | 14% |
| Single | 11% | 23% |
| Mothers' Age | 30.6 (73) | 29.0 (36) |
| Mothers' Education (Hollingshead) | 4.8 (86) | 4.5 (36) |
| Fathers' Age | 34.3 (67) | 34.3 (34) |
| Fathers' Education (yrs) | 5.2 (80) | 4.7 (39) |
| Ethnicity: | | |
| Caucasian | 73% (70) | 58% (26) |
| Hispanic | 16% (15) | 22% (10) |
| Black | 38% (3) | 11% (5) |
| Other | 8% (8) | 8% (4) |
| Income: | | |
| < $10,000 | 15% | 36% |
| $10-20,000 | 35% | 29% |
| $21-30,000 | 25% | 16% |
| > $30,000 | 24% | 18% |
| Number of Presenting Needs | 19.8 (93) | 18.4 (36) |
| Milestones: Sitting up (months) | 6.3 (71) | 6.7 (37) |
| Walking (months) | 12.1 (71) | 11.9 (41) |
| Words (months) | 13.7 (71) | 16.4 (35) |

[1] The Drop-Out group does not include those children who moved away or were referred elsewhere.